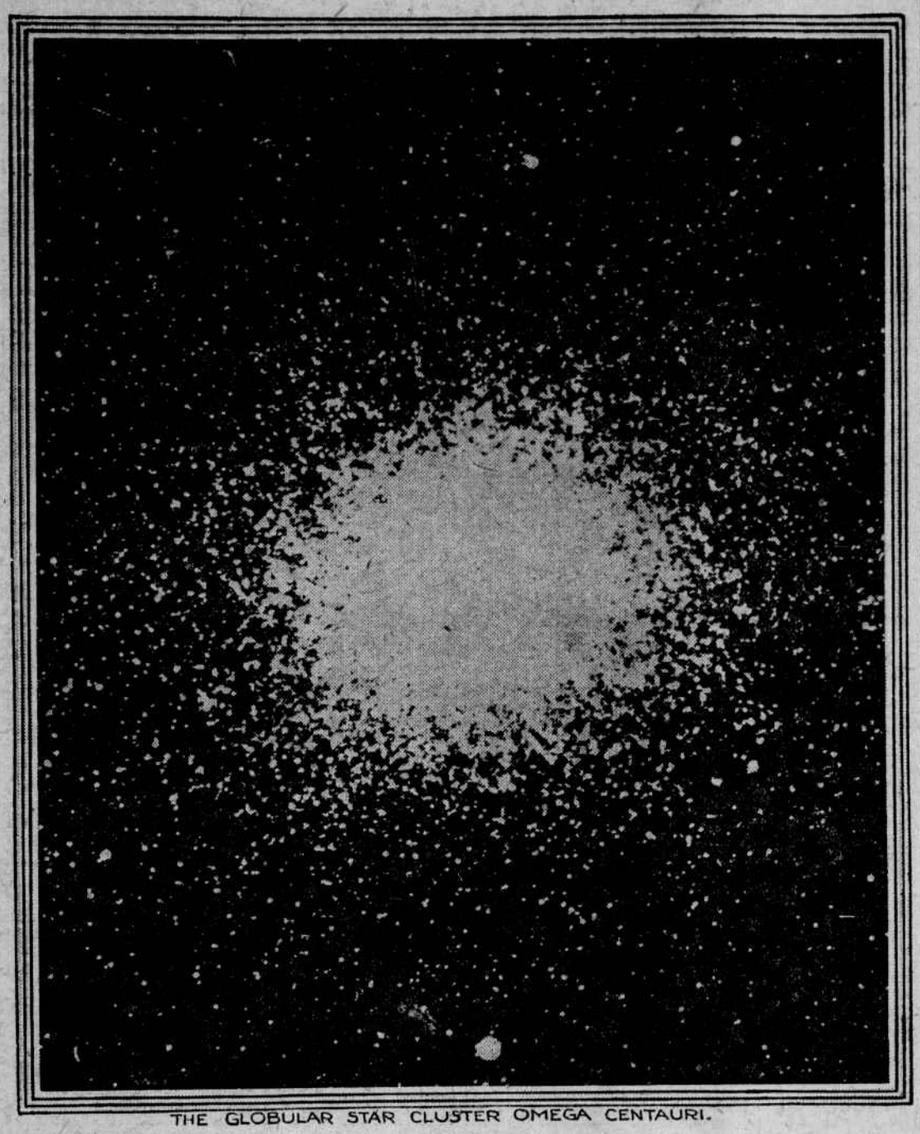
THE LARGE MAGELLANIC CLOUD A RICH FIELD FOR SCIENCE

Study of It May Help Toward Solution of the Structure of the Universe, the Astronomer's Task.

THEY ARE 126,000,000,000,000,000 MILES AWAY.



THE GLOBULAR STAR CLUSTER OMEGA CENTAURI.

This is the nearest and largest of the globular clusters, containing 20,000 stars and at a distance of 21,000 light years. Photograph by courtesy of Harvard College Observatory.

The writer of the subjoined article recently came to public attention when it was announced that he had observed over 2,000 new nebulæ in the southern sky, as well as star clusters which made possible calculation of the distance of the Large Magellanic Cloud. The Cloud measures 15,000 light years from one side to the other. One light year equals six million, million miles.

Mr. Menzel is studying for his Ph. D. degree at Princeton. His home is in Denver and he received his A. B. and Master's degrees from the university there. Last summer he did research work at Harvard College Observatory.

By DONALD H. MENZEL, M. A., Graduate College, Princeton.

ASTRONOMY is the most ancient of all the sciences. As far back as the archeologist is able to find records of primitive man we are able to trace its influence. Ancient temples are placed so that the sun or some certain constellation will light them at different times of the year. It is said that the Egyptians built one of the pyramids so that the Pleiades could be seen through its main passage. Throughout history we find the rich and varied traditions of astronomy playing an important part in the development of civilization. In the Dark Ages the pseudo-science, astrology, flourished and served its purpose. While it was based on the erroneous supposition that the affairs of men could be foretold from the stars, it finally led scientists to investigate the myriad hosts of heaven in the hope of finding their relation to humanity.

It was not until 1610, however, that the means of doing this was given us. In that year Galileo made the first celestial telescope and we began our study of the heavens to find the place of the earth in the universe. That event alone ushered in the modern era and left the superstition of the medieval ages far in the rear; but for many years our progress was slow. The telescope was a help, but we had to learn how to use it to the greatest advantage.

Finally we learned that the planets were more or less solid masses, cool, and revolving about the sun, from which they reflected the light that rendered them visible. It was not a difficult matter to find their distances.

Stars Far More Distant And Shine by Own Light

Astronomers soon came to recognize the differences between planets and stars. The latter are at a much greater distance and shine by their own light. In fact, they are suns, some of them giants in size and shining because they are hot balls of glowing gas. Their distances were unknown, and all attempts to measure them were unsuccessful until Bessell, in 1838, succeeded in determining the distance of 61 Cygni, a small star just visible to the naked eye.

The only method that astronomers could use for finding the "parallax," which is the astronomical name for distance, was the application of the well known fact that a near object viewed from two different positions will appear to have moved with reference to objects further away. The first estimate of stellar distances came from measuring the amount of this shift of the near star among the further faint ones.

As this method could be applied only to the few nearest stars, research on this line was at a standstill again until recently. Within the past decade a new era of astronomy has risen. Aimless "star gazing" was cast aside and theoretical work was done which had for a foundation the well known laws of physics and chemistry bound together with the chains of mathematics. These theories, which were verified by experiment and research, established a fundamental basis for the recent advances.

One of the questions for which an answer was sought and found was, how are the stars formed? With the help of mathematics Dr. Henry Norris Russell, now professor of astronomy at Princeton University, was able to calculate just what the process was. It was found that any large mass of matter in space would gradually collect together and contract by the forces of gravitation.

Interior Pressure Causes Intense Light and Heat

As the gaseous mass grows smaller and smaller the pressure in the center keeps increasing, and as a result the star heats itself to incandescence. At first glowing faintly red, as its evolution progresses, it becomes orange, yellow and then dazzling white. In this latter state the temperature of the star's surface is about twice that of the sun, while it emits perhaps as much as 10,000 times the quantity of light.

The giant star has now become much smaller and the original material is so condensed that we find the next stage in its history is a cooling. The dwarf star, so called in contrast to the giant it once was, now reverses the original process and becomes yellow, orange and red in turn as its temperature decreases.

The final state of a star is, of course, blackness. We find that the sun is well advanced in the dwarf stage and that, unless new forces come into play, the end of the next twenty million years will see its extinction.

Russell's work has put a powerful instrument of research into the keeping of astronomers. That instrument is the star itself. From the study of its color we can compute its place in the giant or dwarf series and mathematics gives us its actual brightness. The only reason that stars appear so faint is because they are so far away. We now know the real brightness, as well as how bright it appears to us, and from these figures we can compute the star's distance.

About 200,000 Light Years Across the Milky Way

It is very difficult to apply this method to the very faint stars and get any accurate results, but Dr. Harlow Shapley, now director of Harvard College Observatory, managed to employ this principle in finding the distances of certain groups of stars known as globular clusters. Most of these lie within and doubtlessly are connected with the familiar formation known as the Milky Way. Finding the distance of the clusters gives us some idea of its limit and extent. Shapley finds it to be about 200,000 light years across.

The mile is far too small a unit to measure the distances of the stars. Instead we use the amount of space that light traverses in a year. Light, traveling at the stupendous speed of 186,000 miles a second, in a year would have gone about six million million miles.

Two hundred thousand light years is, therefore, almost beyond the possibilities of imagination. If these star clusters are all of the same size, their apparent diameter would be smaller the further off they are, and measuring this gives us an idea of their distance.

Of the interesting groups of stars known to astronomers is one that is called the Large Magellanic Cloud, after Magellan, the great explorer. This object, which is not visible for observation in the northern hemisphere, appears to the naked eye as a large patch of light like a small piece of the Milky Way. For many years we thought that this and a similar configuration, the Small Magellanic Cloud, were merely detached portions of the Milky Way, but modern research has shown that this is not the case. The principal reason that we could have no connection with them is that they are moving away from us with the large speed of about 180 miles a second. The sun is within the Milky Way, though not at the exact center.

Vast Congregations of Stars All Having Common Motion

Modern science is doing much to establish our relation to other stellar systems and the Large Magellanic Cloud has been a mystery ever since the telescope revealed its composition. Here were vast numbers of stars swarming together and all having a common motion. Clouds of gas abounded in it and we had no idea of the brightness of the individual stars of the group, for we did not know its distance. There are, perhaps, 100,000 to 1,000,000 stars in this object. No one has taken the time to count them as yet.

What is more, these can only be the brighter of the stars, for at its great distance only these would be visible. Probably the faintest stars we can see there are many times brighter than the sun and there is no way of telling whether or not there are fainter ones present, although it does not seem at all unlikely.

For a number of years now photography of the sky has become very practical and has provided an excellent means of preserving records of the stars permanently. At Harvard College Observatory is a large collection of approximately 300,000 photographic plates which cover the entire sky many times. Comparison of the plates taken a number of years apart reveals much interesting and valuable information. There are numerous fine photographic telescopes in regions north of the equator but very few south. Recognizing the need of a large one in the southern hemisphere, in 1895 Harvard College established a station in Arequipa, Peru, and placed there the largest photographic telescope of its type in the world.

The Writer Discovered Over 2,000 New Nebulæ

Since its installation about 12,000 pictures of the southern sky have been taken, and it was the examination of some of the very finest of these that enabled the writer to find over 2,000 new nebulæ as well as the star clusters which furnished a means for the calculation of the distance of the Large Magellanic Cloud. The plates of the region were carefully studied with a magnifying glass and all interesting formations noted.

The most conspicuous part of the cloud was a long narrow bank of stars so closely crowded one upon the other that their individual images could scarcely be separated. Near this were a number of star clusters of different shapes and sizes, but definitely not of the globular type where they are so condensed as to be almost inseparable in the center. The open clusters also appeared to be involved in patches of nebulous material which probably are huge clouds of glowing gas.

Under the recent examination it was found that a number of small hazy spots thought to be nebulæ could be resolved into stars and were actually globular clusters, smaller than most of those already known. The diameters of these were measured and Shapley computed their distance to be so great that their light takes 110,000 years to reach us. As these clusters are doubtlessly minor parts of the cloud, we have found its distance and further computation shows that the cloud itself is so large that it would take light 15,000 years to go from one end to the other.

In order to be visible to us at this distance we find that a large number of the stars there must be 10,000 times as bright as our sun. That far away our own universe would not be visible. The stars in the cloud, giants both in size and brightness, would make our sun seem insignificant.

The question naturally arises, Of what value is all this information?

Can Analyze Stars' Light And Find Their Components

Now that we know the distance and brightness of these stars we have a means of studying them separately as well as all together. By a simple instrument we are enabled to analyze the light that they emit and find out what elements actually compose them. Each different substance that goes to make up the universe, when heated, gives out light peculiar to itself. The hottest temperatures that can be reached on earth are under 4,000 degrees Centigrade, while these giant stars are probably as hot as 12,000 degrees. This gives the scientist a chance to study the behavior of the elements under entirely new conditions and gain extremely valuable information for the chemists and physicists, as now they are able to verify certain theories of the atom and its structure.

Modern astronomy has been of great service to mankind, although in many cases its direct worth is not appreciated. It aids the chemist and physicist to conduct research that brings new elements, new compounds, or new inventions for the use of the public. Helium, the non-inflammable gas used in balloons during the great war, was first found on the sun and astronomy enabled scientists to find it in the laboratory. It is such work as this that makes astronomy of practical importance.

The Large Magellanic Cloud seems almost infinitely distant, but to scientists it contains a wealth of material that may now be studied at will. We find that as far as we penetrate the depths of space the laws of the universe are constant. Order and not chaos is supreme. As in the past, the task of the astronomer is definite—the solution of the structure of the universe. It is probable that the answer is not far away.

New Marking System Pleases Syracuse

LIGHT of an amazing brilliance is just beginning to dawn on 6,000 unsuspecting collegians enrolled at Syracuse University that a small pamphlet entitled "Regulations," which appeared innocently in their midst this fall, carries between its covers the rules for an epoch making revolution of Syracuse scholarship requirement. This decided move toward a higher scholastic standard which is gradually unfolding itself to student consciousness constitutes the very first action taken by the university after the newly elected chancellor, Charles W. Flint, assumed control.

"This is a time," said Chancellor Flint in his opening address to the student body, "when every college student must justify to the world the privileges it gives him of stepping aside from the economic responsibilities of life for four whole years. It is my aim that the faculty and student body of Syracuse working together will achieve that justification." As a concrete movement toward this end comes the installation of the new grading and honor point systems of scholarship requirement. The theory upon which each is based is that quality and not quantity of work is to be required for graduation.

The change is one of the most sweeping revisions made in any department of the university in years. Explained in plain terms it means that the days when students worked for "credit hours" are a thing of the past for Syracuse. The standard requirement for a degree has been 120 hours of credit. With the new system in order to receive a diploma a student will have to earn not less than 120 honor points as well

The numerical method of grading on a basis of 100 per cent. will no longer be used. Grades will be issued by the latter system, A, B, C, D, E and F. A grade of A will give the student three honor points an hour; that is, for a three hour course an A grade will net 9 honor points. A grade of B will receive 2 honor points, of C 1 honor point. The grade of D is considered passing, but is given no honor points. In terms of figures this reduces to the fact that, regardless of the number of credit hours a student may accumulate toward a degree, he will not be graduated unless the quality of his work for the entire course is above an average of 71 per cent.

Although student sentiment is still busy grasping the full scope of consequences embodied in this seemingly simple announcement, the feeling all over the campus is decidedly favorable to the action, a need for which has been felt for several years back.

WASTE OF FOODS COSTLY TO ALL

Unscientific Methods of Shipping, Handling and Distribution Cause Heavy Loss to Growers, Railroads and Public.

By JOHN LATHROP.

JAMES RILEY HOWARD, president of the American Farm Bureau Federation, was requested to comment on the food shortage article in the New York SUNDAY HERALD of October 15, which set forth that:

Rapid increase of population in the United States, with virtually no increase of per acre production during the last fifty or sixty years, has brought the nation to the verge of a food shortage crisis; and that it may be prevented only by immediate increase of per acre production by better tillage and by vastly more artificial fertilization of lands; by elimination of wastes in farm handling; and by more economic handling in distributive processes.

Mr. Howard replied from his headquarters office, 58 Washington street, Chicago:

"I have read with much interest your discussion of the food situation in THE NEW YORK HERALD and have little criticism to make. I think you might have said fairly to the farmer that there is no end to the possibility of American agricultural production. We have only yet tickled the soil of this country. The limiting thing with regard to our production is the price we receive for our commodities. Increase the price sufficiently and the American farmer will increase his production tenfold. I make this statement advisedly.

"You are, however, going exactly right when you refer to the limitations of acreage and increases in population. The world's population increased from 600,000,000 in 1800 to 1,600,000,000 in 1900, nearly threefold. This population was principally in the temperate zone. The population of America increased in the same time from 5,000,000 to 75,000,000, fifteenfold, which was five times that of the world increase. The ratios of population increases since 1900 seem to be well sustained.

"In the meantime scarcely a new acre of available land is being created, but other forces than population are effectively at work. The things which supplied our forefathers of a generation ago would not for one minute satisfy us. Our standards of living have increased amazingly, and we are constantly demanding more food and clothing and other necessaries."

In a recent interview with Mr. Howard he said to me that his efforts for American agriculture were based on two desiderata:

"First—The American farm industry must be coordinated with other industry, be granted precisely the same economic facilities as are supplied to other industry, and scientific adjustment of relationship between what the farmer buys and what he sells, to the end that stability and solvency be assured.

"Second—The betterment of the situation of the farmer must be achieved in a manner so as to bring into play economies such as will give the farmer what he needs, and actually decrease the cost of food to the dweller in the cities."

Wastes of Distribution Between Farm and Consumer

These results, Mr. Howard believes, may be produced by eliminating the serious wastes now taking place in distributing foodstuffs from farm to consumer. He contends that it is not the primary cost of food bought on the farm that forces the present too high food costs on the city man; but that it is the uneconomic additions now made by middlemen and in physical distribution, as well as actual waste by spoiling of products on the farms which never reach the markets, which add the present 200 to 1,000 per cent. to what the farmer actually receives.

Secretary Hoover of the Department of Commerce is authority for the statement that "nearly half of the perishable products of our farms never reach the ultimate market," but spoil on the farms.

It is, therefore, not a philosophy of despair that is involved in this current discussion of America's and the world's food problem; but rather a question of utilizing the possible and actual production so as to eliminate wastes.

It has become a matter of common knowledge that food costs the city dweller from two to ten times as much as the farmer receives for it on the farm; and even the tyro knows that defective systems of marketing and distribution account for the greater part of this too large increase.

President Howard referred me to W. B. Armstrong, president of the Washington Farm Bureau Federation, and a member of the committee appointed by the national federation to make a complete study of marketing and distribution and discover how the existing conditions for the city dweller and farmer can be remedied. Mr. Armstrong was seen at the Pennsylvania Hotel. He had a mass of technical figures and charts and curves to support his assertions.

"On a given day word goes out that Pittsburgh needs cabbages. Immediately a dozen cars of cabbages start for Pittsburgh, some from the eastern shore of Maryland, some from Missouri, some from other localities. But Pittsburgh needs only two or three cars of cabbages, while New York needs those extra nine or ten cars that went to Pittsburgh. The result is that Pittsburgh destroys the surplus, and New York goes hungry for cabbages; and so on through the whole system, or utter lack of system, of marketing perishable foodstuffs. The waste is enormous.

"Now, note this. Under such conditions the producer loses every dollar he should have had for the cabbages destroyed in Pittsburgh, for he ships commission house. The railway gets nothing for hauling the cars of cabbages which are to be destroyed, for they are shipped the freight money to be collected at the destination.

"And the peculiar thing is that the surplus in Pittsburgh doesn't force down the price of cabbages there, while the shortage in New York does force up the price here. It works like a ratchet—turns only toward the rising side, never the other way. It is not only in huge cities such as New York that these conditions obtain. They are in all cities, even down to those of comparatively small population.

"The answer? Isn't it self-suggestive from the foregoing facts? We must govern the flow of foodstuffs so as to send them where they are needed at the time they are needed, thus preventing the existing wastes and losses from surplus one place and shortage another. To do that we shall have to create a central information service, to which food needs shall be made known and from which that information shall go to the producer, who will then ship telligently.

Cooperative Selling, When Rightly Managed, Economic

"We who have had experience suggest cooperative selling of foodstuffs, because we know that, properly conducted, it is economic and beneficial to all concerned. We suggest it not to invade the legitimate province of any legitimate existing handling agency, but because as it is now the producer often gets no price protection from the commission handlers and the consumer gets none either. The commission man has no stake in the thousands of cars that come, say, to New York city, excepting in such cars as he consents to handle. And even then he cannot lose, for he only collects his commission, and if that eats up the entire proceeds the producer goes without anything."

Mr. Armstrong does not hint that a central information bureau alone would cure the whole situation. There are, he says, other problems, involving the gradual marketing rather than dumping of staple foodstuffs according to scientific rules, such, for instance, as govern in the marketing of steel, that industry being highly organized and handled intelligently. Then there is the matter of stopping the shipment from producing point to distant points and then back to consumers in the vicinity of the very place where the food is produced.

"The whole proposition as to food supplies for the American people," President Howard says, "rests on a basis vastly broader than the precise cost of food to this or that section of the population, or the return for effort to the farmer or other element of the people.

A Question of Keeping Or Lowering Life Standards

"It is a matter of reducing the American standard of living or maintaining it. That is the social issue involved. The American standard has always been higher than that of other countries. It has had its compensating advantages. It has invested this nation not only with greater dignity in the eyes of the world but has upbuilt a people that possesses faculties of initiative and progressiveness which have made of us the leader in world thought and in a large measure of world action.

"Do our people wish to see that standard lowered? Do they wish to have the American people climb down the ladder into the food pinches which have worried other peoples for generations? If not—and we know that our people wish no such thing—then we must as a whole people take up this problem, organize food production on a broader basis, lift the food industry to a higher level and work to achieve that efficiency which is essential to the situation.

"The food problem will not be solved simply by getting higher prices for the farmer. The present enormous losses, due to spoiling of foods on the farms because they cannot be marketed, to tremendously wasteful methods of marketing and physically distributing the food, must be prevented. And all of these things must be done in that larger spirit of fellowship between country man and city man which will weld us all into harmony and cordial cowork."

In illustration of part of President Howard's meaning it is admitted that this summer hundreds of carloads of foodstuffs were dumped on the Jersey flats and rotted there, although shipped from Southern fields and orchards to supply the New York market. For this foodstuffs transportation the railways received not a cent of freight money, although they were confessedly in vital need of obtaining funds to lift them from their financial troubles; the producer in other States received not a cent for these destroyed foods, and the consumer in New York paid more than he would have paid had there been efficient distributive handling of these much needed food supplies.

New Migration Laws in Central Europe

Central European Governments are working on new laws for the protection of their migrating peoples, and some of these are now in operation. Provision is being made to insure redress from unscrupulous agents, who induce them to embark for America, although these agents are aware the quota of that country is already exhausted.

Besides finding out in advance that there is a chance of entry here, efforts are also being made to gain some assurance of reaching the country for which they start and knowledge gives them of conditions under which they would likely have to begin life over again.

Victims of Soviet in Beirut

Thousands of Russians have sought refuge in Beirut from Soviet tyranny, and for their assistance classes have been established where trades and professions may be studied for self-support. Miss Lettie Brown sailed recently for Smyrna to join the Beirut staff of the Y. W. C. A., under whose auspices this work of education is being carried on.

WHAT THE NEW ALIEN LAW DOES

Hereafter a Married Woman Neither Gains Nor Loses Citizenship by Marriage or Her Husband's Naturalization.

EXPATRIATION will no longer be a penalty for marriage as far as American women are concerned, and the marriage of foreign born women to American citizens will no longer be a royal road to citizenship in the United States.

Boiled down to its essence, this is essentially what the Gable bill for the independent citizenship of married women does. The legislation sponsored by the National League of Women Voters, indorsed in the Republican and Democratic conventions, has passed both houses of Congress by overwhelming majorities, has received the signature of President Harding, the pen with which he signed having already been presented to Mrs. Maud Wood Park, to whose tireless efforts the passage of the measure is largely attributed.

Mrs. Park, as president of the League of Women Voters, is willing enough to give credit to other women organizations for the passage of the measure. What she stresses is not the credit for the bill but the fact that it constitutes "the biggest forward step in legislation affecting women since the passage of the Suffrage Amendment."

The bill, which was championed in the House of Representatives by John L. Cable of Illinois, provides that the right of any woman to become a naturalized citizen of the United States shall not be denied or abridged because of her sex or because she is a married woman; that a woman shall neither gain nor lose citizenship by reason of her marriage or by reason of the naturalization of her husband. Women eligible to citizenship may be naturalized with all the requirements of the naturalization laws, with the exception that no declaration of intention is required, and that one year's residence within the United States or the possessions is required instead of five.

Heretofore when an American woman married a foreigner in the United States she automatically lost citizenship in the Republic and all the advantages, legal and political, which was her right as an American. Under the new legislation she retains her citizenship unabridged and only on her own initiative can she lose it.

The reverse of the shield was equally important if not more important from a political standpoint. Foreign born women who married Americans automatically became citizens without as much as the signing of the formula of allegiance to the Constitution. The bill requires independent action of such women, but makes the way to citizenship easier by providing one year of residence instead of five.

Law Does Not Grant, But Permits Naturalization

It was not the purpose of the bill to take away citzenship already acquired or to restore citizenship lost through marriage. It has therefore no retroactive sense. At the same time it makes it possible for those American women who have lost citizenship to restore their rights by the simple process of naturalization, after one year. In discussing the bill and its effects Mrs. Maud Wood Park said:

"The greatest single Federal disability of women will now be removed. Making the citizenship of foreign born women a consciously acquired privilege is a great step in Americanization. The plan of allowing the American woman who marries an alien to retain her American citizenship, if she chooses, is a response to a demand not confined to the United States.

"Bills have lately been introduced in both England and France to give a like privilege to the women of those countries. It is part of the general idea that women are equally responsible with men for social stability and should be made to feel their responsibility.

"I believe the bill just passed is a step toward a world agreement that nationality shall be a matter of choice and not of dictation and that no nation can compel the allegiance of any man or woman who prefers to become a citizen of a country in which he or she was not born. We shall the sooner do away with conditions which subject men to the disabilities of dual citizenship now that we have made women under the law subject to exactly the same conditions."

Senator Le Baron Colt (Rep. Rhode Island), chairman of the Immigration Committee, who steered the measure through the Senate, summed it up as follows:

"The bill provides that in this country expatriation shall no longer be a penalty of marriage."

The purpose of the legislation has the wholehearted indorsement of Secretary of State Hughes. Because of the international aspect of the question and the phases of "dual citizenship" that arose, Senator Colt asked Secretary of State Hughes for his views. The Secretary, after offering some criticism of the Senate bill, said:

"It is suggested on the one hand it might be provided that an American woman who marries an alien shall not lose her citizenship unless she makes formal renunciation according to a simple prescribed procedure, and, on the other hand, that an alien who marries an American shall not by her marriage become an American citizen unless she complies with certain simple formalities prescribed by law.

"Under provisions of this general character an American woman marrying a foreigner could without difficulty avoid a dual status by abandoning her American nationality, should she desire to do so, and an alien woman marrying an American could likewise prevent herself from becoming a woman without a country."

No Immediate Effect Likely in Politics

The National League of Women Voters does not expect the passage of the bill to have any effect, at least not immediate, on national politics. The incentive it will give to the current of Americanization is what the league stresses most.

"Heretofore," points out the League, "politicians who had local interests in wards and districts saw to it that the foreign born men got the degree of education that enabled them to comply with naturalization requirements. The foreign women were completely overlooked. They could be herded to the polls in any and all interests. This would be the blindest vote in America. The social aspect of the absence of incentive to acquire a knowledge was more vicious than the political. How important the matter is seen when it is realized that there are whole wards in thickly populated foreign centers here where hardly any of the women know a word of English."

Instancing how American born women had suffered great disabilities in the past because they had to abandon their citizenship when they married foreigners, league representatives referred to the great number of American women who married Canadians in the Northwest. In a large number of instances these women had acquired Government land under the homestead laws prior to their marriage, but the fact of marriage ipso facto debarred them from legal right to their holdings. Many American women who qualified as lawyers lost the right to practice by reason of marriage.

The property protection afforded is quite apparent. The new law does not affect children. They will still continue to "fly the flag of the father" as one orator in the House of Representatives expressed it. It is too early to estimate the number of women who will take advantage of the legislation, but the League of Women Voters declares that "hundreds of thousands of women" have been affected and predict that thousands of American women who lost their nationality through marriage will come back under the Stars and Stripes.

Even should the American woman who marries a foreigner leave the United States and go to live in the home of her husband abroad she does not relinquish her citizenship, unless she stays there for two years, or five years in another foreign country. In that case there would be a presumption that as in the case of naturalized citizens she had lost her right to American protection.

Effect of the Law as Summarized by Mr. Cable

Summarizing the effects of the change in the law Representative Cable said:

"A natural born American must wait twenty-one years before she or he is permitted to participate in the Government of this country. A foreign born man or single woman who comes to this country and resides here continuously for five years, if he qualifies before the courts, may become naturalized and acquire the right of suffrage. But a foreign born woman who comes to this country one day automatically becomes an American citizen the next if she marries an American citizen or if her husband becomes naturalized. With one day's period of residence, as compared to the natural born American's twenty-one years of residence, she acquires the same rights, privileges and benefits in and to our Government. She is not required to be able to speak the English language, to know of our customs and laws, our Constitution, and to be attached to the principles of our Government; she does not even have to renounce allegiance to her foreign ruler and take the oath of allegiance to Uncle Sam.

"The present law permitting the naturalization of foreign born deals directly with the husband and father and gives the wife and mother but secondary consideration. The husband is the one who is educated. He is the one who must learn to speak the English language, to know our country, its Constitution, and laws. He is the one who must be attached to the principles of our nation. He only renounces allegiance to his foreign ruler, and in most cases he only appears in open court and declares on oath that he will support and defend the Constitution. The husband is the one who must be fitted and prepared for his part as an American citizen. Even the children are sent to public schools; but what of the wife? The true process of naturalization should include the education of the mother of this immigrant family. The mother's influence and guidance would be lost to the family without the education that naturalization proceedings provide and require. My bill is intended to permit this wife and mother to learn something about the country. She is the one who should guide these children and ought to have the same privileges of an education as the father.

"In my opinion the rich American who marries a title and lives abroad should cease to have the privileges and benefits of an American citizen, and under my bill special provision is made that if she resides continuously for two years in the country of which her husband is a citizen or subject, or resides continuously for five years abroad, she is presumed to have ceased to be an American citizen. But there are many American girls who marry foreign born and who continue to reside in this country. Their loyalty and fidelity is with the United States. Since the nineteenth amendment grants equal suffrage to women, so also should they have equal rights with reference to citizenship. An American citizen who marries an alien girl still retains his citizenship; so also should the American girl who marries the alien man. We should not relinquish our rights to legislate or withdraw our country's protection from these natural-born American women; their personal and property rights should be determined by our laws; and we should not by legislative action surrender this right to any foreign nation."